IN THE CLAIMS

1. (currently amended) A method for generating views of a heart along anatomically useful planes, said method comprising:

receiving a cardiac 3D ~~dataset; and~~dataset representing a portion of the heart;

calculating, from the cardiac 3D dataset, at least one of a short axis and a long axis without user intervention;

generating, by a processor, a volume of a ventricle of the heart upon receiving a selection of a phase of the heart, wherein said generating the volume comprises creating the volume by region growing; and

diagnosing the heart by analyzing the volume.

2. (original) A method in accordance with Claim 1 wherein said calculating comprises:

segmenting a left cavity of the heart;

generating a long axis first estimate of the left cavity; and

using the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

3. (original) A method in accordance with Claim 2 wherein said segmenting comprises segmenting a left cavity comprising a left ventricle, an atrium, and an aorta.

4. (original) A method in accordance with Claim 2 wherein said segmenting comprises segmenting a volume whose cardiac EKG phase location is closest to 75% of an R to R interval of the dataset including a plurality of volumes.

5. (original) A method in accordance with Claim 2 wherein said generating a long axis first estimate of the left cavity comprises calculating an axis of inertia and using the calculated axis of inertia as the first estimate.

6. (original) A method in accordance with Claim 5 wherein said using the first estimate of the long axis to determine at least two points of a second estimate of the long axis comprises:

selecting a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

selecting another point within the segmented cavity as a second point of the second estimate of the long axis.

7. (original) A method in accordance with Claim 6 wherein said selecting another point comprises:

calculating a center of inertia point of the left cavity;

intersecting the segmentation with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculating a center of inertia of the intersection; and

using the center of inertia of the intersection as the second point of the second estimate of the long axis.

8. (original) A method in accordance with Claim 5 wherein said using the first estimate of the long axis to determine at least two points of a second estimate of the long axis comprises:

calculating a center of inertia point of the left cavity;

intersecting the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculating a center of inertia of the intersection;

using the center of inertia of the intersection as the first point of the second estimate of the long axis; and

selecting another point within the segmented cavity as a second point of the second estimate of the long axis.

9. (original) A method in accordance with Claim 2 wherein said receiving a cardiac 3D dataset comprises receiving a Computed Tomography (CT) cardiac 3D dataset.

10. (original) A method in accordance with Claim 2 wherein said receiving a cardiac 3D dataset comprises receiving a Positron Emission Tomography (PET) cardiac 3D dataset.

11. (original) A method in accordance with Claim 2 wherein said receiving a cardiac 3D dataset comprises receiving a Magnetic Resonance (MR) cardiac 3D dataset.

12. (currently amended) A computer readable medium encoded with a program executable by a computer for generating views of a heart along anatomically useful planes, said program configured to instruct the computer to:

receive a cardiac 3D ~~dataset; and~~dataset representing a portion of the heart;

calculate, from the cardiac 3D dataset, at least one of a short axis and a long axis without user intervention; and

generate a volume of a ventricle of the heart upon receiving a selection of a phase of the heart, wherein to generate the volume, said program configured to instruct the computer to create the volume by region growing; and

diagnose the heart by analyzing the volume.

13. (original) A computer readable medium in accordance with Claim 12 wherein said program further configured to instruct the computer to:

segment a left cavity of the heart;

generate a long axis first estimate of the left cavity; and

use the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

14. (original) A computer readable medium in accordance with Claim 13 wherein said program further configured to instruct the computer to segment a volume whose cardiac EKG phase location is closest to 75% of an R to R interval of the dataset including a plurality of volumes.

15. (original) A computer readable medium in accordance with Claim 13 wherein said program further configured to instruct the computer to:

select a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

select another point within the segmented cavity as a second point of the second estimate of the long axis.

16. (original) A computer readable medium in accordance with Claim 15 wherein said program further configured to instruct the computer to:

calculate a center of inertia point of the left cavity;

intersect the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculate a center of inertia of the intersection; and

use the center of inertia of the intersection as the second point of the second estimate of the long axis.

17. (currently amended) A medical imaging apparatus for generating views of a heart along anatomically useful planes, said medical imaging system apparatus comprising:

an imaging system comprising:

a detector array;

at least one radiation source; and

a computer coupled to said detector array; and

a workstation coupled to said computer, said workstation configured to:

receive a cardiac 3D ~~dataset; and~~dataset representing a portion of the heart;

calculate at least one of a short axis and a long axis without user intervention; and

generate a volume of a ventricle of the heart upon receiving a selection of a phase of the heart, wherein to generate the volume, said workstation configured to create the volume by region growing. .

18. (original) A medical imaging system in accordance with Claim 17 wherein said workstation further configured to:

segment a left cavity of the heart;

generate a long axis first estimate of the left cavity; and

use the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

19. (original) A medical imaging system in accordance with Claim 18 wherein said workstation further configured to:

select a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

select another point within the segmented cavity as a second point of the second estimate of the long axis.

20. (original) A medical imaging system in accordance with Claim 19 wherein said workstation further configured to:

calculate a center of inertia point of the left cavity;

intersect the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculate a center of inertia of the intersection; and

use the center of inertia of the intersection as the second point of the second estimate of the long axis.